

ABSTRACT

A Fiber-to-the-Home (FTTH) multi-media access system and method are provided in which voice, video and data signals are transported over a passive optical network (PON) between a central office location and a plurality of subscriber home network units (HNUs). Optical video distribution circuitry and telephony/data distribution circuitry at the central office location are included in the system and operate to send and receive CATV video, PBS video television, telephony and Packet data signals to and from the HNUs via the PON. Optical multiplexing/demultiplexing circuitry operating at the central office combines the video signals, which are operating at one optical wavelength, with the telephony/data signals, which are operating at a second, distinct optical wavelength. These combined optical signals are then transported over the PON to the HNUs. The PON includes a plurality of distribution fibers coupled to a plurality of passive optical splitters, which are each coupled to a plurality of drop fibers that connect to the HNUs. The HNUs receive the combined optical signals, demultiplex and convert the optical signals into corresponding electrical signals, which are in turn coupled through the HNU to the video, data and telephony networks within the home. The HNUs also receive upstream electrical signals from devices within the home, multiplex and convert these electrical signals into upstream optical signals, and transmit these upstream optical signals to the central office.